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Minority stress among homosexual and bisexual individuals – from theoretical concepts to research tools: The Sexual Minority Stress Scale

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Summary

Minority stress is a relatively new concept that has emerged from the concept of stress. Its popularity among researchers who are interested in minority groups is increasing. Minority stress refers to the experiences of stigma, rejection and violence by the majority of society as experienced by the minority.

The concept can be operationalised in a number of ways, for instance via a questionnaire such as the Sexual Minority Stress Scale (SMSS) presented in this paper. It concerns a clearly defined concept of minority stress and uses some stress indicators. It was translated and adapted into Polish. This paper presents the results of statistical analysis based on answers of 206 individuals describing themselves as homosexual and 62 describing themselves as bisexual.

High psychometric results of the questionnaire indicate that SMSS can be used in research on minority stress in bisexual and homosexual individuals. However, further research is required to verify its usefulness in the clinical setting as a screening tool to diagnose those who may be at risk from high levels of minority stress.

minority stress, bisexuality, homosexuality, Sexual Minority Stress Scale (SMSS) questionnaire

BACKGROUND

From physiological to minority stress

Stress is one of the most frequently used terms in the field of mental health. In the classical meaning of Hans Selye [1], it is the body's reaction to negative stimuli. Studies on stress were conducted after World War II to understand how the emotional breakdowns produced by war-related stress are similar to reactions to ordinary everyday stress [2]. These studies clearly showed that many life events, including positive ones, can cause similar symptoms. Richard Lazurus [3,4] made major contributions to the study of stress. He focused on individual differences in experiencing stress, conceptualizing cognitive processes as mechanisms that regulate people's efforts to cope with a given situation.

Nevertheless, agreement on the definition of stress remains elusive. Some researchers believe that the definition should include the stimuli responsible for causing stress, some see it as the human reaction to stressful stimuli, and others focus on the relationship between a stimulus and the way a person responds to it [5,6]. In this

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context, it is also worth mentioning the unresolved issue of the relationship between stress and emotions – i.e., whether emotions constitute an element of stress and can be considered one of its indicators, or are rather just the result of experiencing stress [7]. It seems that these issues are essential, especially in the context of research. This is because they influence the way a study's variables are conceptualized and operationalized.

Researchers typically distinguish between physiological and psychological stress. Rachel Kaplan and Richard Lazurus [3,7] divide human reactions in an unambiguous and simple manner – things occurring in the mental sphere are referred to as psychological stress, whereas things occurring in the physiological sphere are referred to as physiological stress. Władysław Łosiak [6] believes stress should be regarded as a uniform process, which may include variable factors and take a variable course. Charles Cofer and Mortimer Appley [8] focused their attention on a concept of importance in the context of minority stress. They believe the term psychological stress is essentially broader and refers to certain circumstances that cause stress. Kaplan [7] addresses this issue by broadening the perspective on stress, pointing out that emotional states associated with stress can be a consequence of adverse psychosocial events that may have a symbolic meaning. This leads us to the concept of social interactionism put forward by George Mead [9], according to whom our personality is shaped mainly by social interactions and, in the course of development, human beings should adapt to the culture in which they live.

This last point is particularly relevant with regard to the functioning of bisexual and homosexual people in a heteronormative society. As Bruce Dohrenwend [10] puts it, stress may be caused by problems in our everyday life which do not have to be directly connected with stressful events. In accordance with the concept of social stress, stress can be produced not only by personal events, but also by conditions of living related to the social context [11,12]. Thus, social stress refers mainly to people belonging to minority groups who are stigmatized for various reasons, such as their economic situation, race, gender, background, or aspects of their sexuality.

People who belong to a minority group may experience both overt aggression (so-called traditional discrimination practices) and microagression (for a review of studies on violence experienced by bisexual and homosexual people, see Iniewicz [13]). The latter term was introduced in the 1970s by Chester M. Pierce in relation to situations experienced by Black Americans. Later, it was used in relation to other minority groups. Microagression refers to behaviors resulting from unconsciously maintained prejudices, which are often invisible even to the perpetrator. The consequence of experiencing microagressive behaviors is a deteriorating state of mind that leads to serious mental health problems [14-18].

It can be said that minority stress is a specific type of social stress that results from belonging to a minority group. The concept of minority stress encompasses various theoretical concepts in the field of psychology and sociology. In general it refers to the conflict between two systems of values: the minority system, characteristic of a stigmatized group, and the majority system, which is preferred in the social environment in which members of the minority group must operate. Conflicts of this kind, which are experienced in the social context, constitute the essence of social stress as well (minority stress has been described elsewhere [11-13,19,20]). Virginia Brooks [19], who invented the concept of minority stress, defined it as stress connected with a lower social status that involves experiencing discrimination in everyday life. She regarded belonging to a minority group as a factor that increases the probability of developing mental health problems; thus, she believed it should be considered a risk factor for such problems. It should be noted that affiliation with a minority group can also be a source of support. It is therefore important to assume that the main issue lies in the relationship between a minority group and the majority in a given society.

RESEARCH ON MINORITY STRESS

Over the past dozen years, there has been an increase in research related to minority stress models and the relationship between social status and mental health [21-23]. The common as-

sumption is that prejudice and discrimination are factors that can significantly contribute to mental and somatic problems.

Minority stress has been variously defined, for instance by using the "peer judges" method that assesses the narrative about the subject's life according to specific criteria. Sometimes, an interviewer, in accordance with a prepared list, verified whether a subject experienced circumstances connected with affiliation to a minority group, which could be the cause of stress [24-26]. However, a questionnaire is the method used most often. A number of studies primarily measured the experience of racism, or stigma in psychiatric patients [27-29]. Later, tools that addressed the issue of sexual orientation were developed [30].

Studies of minority stress using a questionnaire mainly rely on one variable as a stress indicator. Less commonly, a combination of variables is used. The most common indicators of minority stress are internalized homophobia [31,32], sexism or heterosexism [33,34], or concealment [35]. These scales usually comprised relatively few items – e.g. a dozen questions investigating negative life events connected with sexual orientation or witnessing such events. The questions or statements typically referred to events within a specific time-frame, e.g. in the previous year or in a lifetime. Behavioral stress indicators were also used. Often these assessed behaviors whose aim was to reduce stress; they were not necessarily healthy, for instance involving smoking, drinking alcohol or other unhealthy behaviors [36-39].

The variety of methods and tools used to measure minority stress makes it difficult to compare individual studies. However, if their results are analogous and they clearly indicate the influence of experiencing stress on mental health problems, they should confirm hypotheses concerning the expected relationships. Another issue is that various researchers referred to theoretical concepts about minority stress or formulated models whose aim was to clarify its mechanisms. The majority of authors based their studies on a chosen variable as the indicator of minority stress, without the need to justify it. Researchers have rarely used multiple variables as indicators of minority stress or referred to theoretical concepts or models.

Ilan Meyer proposed a model of minority stress that is useful for research and clinical practice [11,12,31,32]. He conducted studies on the model in the 1990s, and the model has consistently been verified by subsequent studies. The model primarily incorporates elements such as internalized homophobia, expectation of rejection and concealing one's sexual preferences (outness), along with concepts such as connectedness or identification with the minority community [40,41]. As this model has already been described in Polish research literature [13,20], a detailed description of it will not be attempted here. Instead, we will present a tool that has emerged in relation to this model. This tool is of interest because it can be used in both research and clinical practice.

MATERIALS AND METHODS

Sexual Minority Stress Scale (SMSS)

As already mentioned, questionnaires are the most common method of measuring minority stress. One such questionnaire is the Sexual Minority Stress Scale (SMSS), designed to aid clinical identification of stressful areas of life [42]. The scale is based on Meyer's concept and model of sexual minority stress [11]. The following subscales of SMSS are related directly do Meyer's model: Internalized Homophobia (IH), Expectations of Rejection (ExR), Concealment (Clm), and Sexual Minority Negative Events (SMNE). These four subscales assess ohenomena resulting from prejudice, namely discrimination and violence. The SMSS also includes a Satisfaction with Outness subscale (SO), which is not related directly to Meyer's model but is nevertheless considered an important factor in the experience of stress [11].

The Internalized Homophobia subscale includes 10 items, which are based on similar, older scales (12,43). It measures the extent to which a homosexual or bisexual person rejects their sexual orientation, experiences discomfort about being attracted to people of the same sex, and attempts to avoid emotional fascination or sexual desire. The items are rated on a 4-point scale from "never" to "often". Higher values indicate a higher level of internalized homophobia. Examples of items: "Have you tried to stop being

attracted to persons of the same sex?", "If someone offered you a chance to be completely heterosexual, would you accept the offer?"

The Expectation of Rejection subscale (6 items), which is also based on similar earlier scales [12,29], measures the extent to which a homosexual or bisexual person experiences reluctance from others and expects rejection and stigmatization. The subscale consists of 6 items. Answers are given on a 4-point scale from "strongly disagree" to "strongly agree". A higher value indicates a higher level of expectations of rejection. Examples of items: "Most employers will not hire a person like you", "Most people believe that a person like you cannot be trusted".

The Concealment subscale (6 items) measures the degree to which a person intentionally hides their sexual orientation from others [44]. It consists of 6 items. Answers are on a 5-point scale from "not at all" to "all the time". A higher value indicates a higher level of concealment. Examples of items: "I have concealed my sexual orientation by telling someone that I was straight or denying that I was LGB" (Lesbian, Gay, Bisexual), "I am concealing my sexual orientation by avoiding contact with other LGB individuals".

The Satisfaction with Outness subscale measures the level of disclosure of the person's sexual orientation to their family, friends, co-workers, religious community or clergy and health care providers (subscale SOa, 5 items), as well as the degree of satisfaction with this disclosure (subscale Sob, 5 items). The first subscale is measured on a 4-point scale from "completely" to "not at all" and the second one on a 4-point scale from "extremely satisfied" to "extremely dissatisfied". Higher values indicate greater level of outness and greater satisfaction with it. The subscale is arranged in pairs – level of disclosure and satisfaction. Outness was not an element of the minority stress model created by Meyer [11], although it was taken into account in later studies [40].

The Sexual Minority Negative Events subscale measures stressors experienced by homosexual or bisexual persons that are perceived to be related to their sexual orientation. The 26 items of the scale were divided into three categories: events that relate to the examined person (16 items), events which the person had witnessed or heard about (6 items), and items related to infectious diseases such as HIV/AIDS and hepatitis C virus (HCV) affecting the person or their loved ones. A higher value indicates more adverse events. Examples of items (one from each category): "I was treated unfairly by peers or siblings", "I heard negative statements about LGB or gender nonconforming people" and "I have been diagnosed with HIV or other chronic sexually transmitted disease such as hepatitis C".

According to the authors of the SMSS, conclusions can be drawn about sexual minority stress experienced by the examined person based on subscales scores and each subscale can be used separately.

SMSS was translated and adapted to the Polish language with the authors' consent. Translation was done by people of different ages, gender and education levels, and standard forward-backward procedures were followed, including a comparison of the translations. At this stage, a pilot study was conducted in which homosexual and bisexual individuals completed the questionnaire and commented on the clarity and intelligibility of items. Final adjustments were subsequently made to the wording of items. The first page of the original version of SMSS contained definitions of two terms that appeared in the items: sexual orientation and gender nonconforming. In addition, the Polish version includes definitions of gender identity. As the pilot study demonstrated, these terms may be defined differently. The Polish version of SMSS has already been used in other studies [15]. The current study was approved by the Ethical Committee of the Institute of Psychology at the Jagiellonian University.

Participants

A total of 268 self-identified homosexual and bisexual individuals participated in the study (LGB group), including 206 (76.9%) homosexual individuals (LG group: 80 (38.8%) women and 126 (61.2%) men) and 62 (23.13%) bisexual individuals (B group: 48 (77.4%) women and 14 (22.6%) men). Recruitment was undertaken using a variety of methods: snowball sampling, a website directed at people belonging to sexual minorities (the largest in the Polish LGBT community: www.queer.pl), nonprofit organi-

zations, and via leaflets placed in LGBT-friendly pubs and cafes. The aim of this strategy was to draw as representative a sample as possible.

To specify the sexual orientation of respondents based on Kinsey's scale, Klein Sexual Orientation Grid was applied [45,46]. It contains questions referring to: sexual attraction, sexual behavior, sexual fantasies, emotional preference, social preference, lifestyle preferences, and self-identification. As there were no major differences between the first six and the seventh item, self-identification was used as a method for specifying sexual orientation.

A more detailed description of the study sample can be found in a publication by Iniewicz [13], which also presents results of minority stress research.

Statistical analysis

The statistical analysis of SMSS consisted of three steps. The first two were conducted with all participants (LGB) as well as with homosexuals (LG) and bisexuals (B) separately. Firstly, internal reliability was assessed using Cronbach's alpha coefficients. Items were classified to scales according to the original idea proposed by SMSS authors. Cronbach's alpha of 0.7 or higher was considered to indicate internal consistency. The second step was an exploratory factor analysis. Principal component analysis was used for factor extraction. The orthogonality of scales was assumed and Varimax rotation was applied as SSMS subscales can be used separately. The optimal number of factors was based on a scree plot. Listwise deletion was used for missing data. The analysis did not include two items of the SO subscale connected with the disclosure to religious community or clergy and the degree of satisfaction with this disclosure. This was because of a large number of "not applicable" statements received. The SMNE subscale was not included in the analysis either, mostly because of a small sample size of bisexual individuals. The ratio of the number of bisexuals (n=62) to SMSS items (n=58) was only 1.1:1.0. Therefore the results for bisexual participants based on all items appear biased and unreliable. There was no need to calculate Cronbach's alpha coefficients because the extracted factors included exactly the same items as those proposed by SMSS authors.

The third step was also exploratory factor analysis with principal component analysis and Varimax rotation based on the whole dataset (LBG) and all SMSS items, including 26 items of the SMNE subscale. Cronbach's alpha coefficients were calculated to measure internal consistency.

The final stage of the analyses was to compare the outcomes of the homosexual and bisexual groups on each of the SMSS scales. The nonparametric Mann–Whitney test was used to compare the groups because of ordinal scale of the data. The results were considered statistically significant when the p-value was lower than the significance level of α=0.05. All analyses were performed using PS IMAGO PRO 3 (IBM, New York, USA).

RESULTS

Table 1. Participants' age

	Homosexuals			Bisexuals		
	Men	Women	Total	Men	Women	Total
N	126	80	206	14	48	62
Mean (years)	28.67	23.12	25.51	30.21	22.29	24.08
SD	8.79	6.23	8.36	11.31	4.51	7.35

The first stage of the process involved SMSS reliability analyses that were conducted with the original notion of scales, i.e. as proposed by the authors of the questionnaire. The analysis was performed on the whole sample (LGB) as well as separately for homosexual and bisexual respondents. In most cases, Cronbach's alpha coefficients (Table 2) exceeded the minimum limit of 0.7, with the exception of SOa. A reliability analysis did not indicate any items whose removal would significantly improve Cronbach's alpha for any of the SMSS subscales. The results indicate high internal consistency within scales and very good items assignment to scales in each of the groups studied.

Table 2. Cronbach's alpha coefficients for SMSS scales calculated based on the whole number of participants (LGB), homosexual (LG) and bisexual (B) groups

SMSS subscales	LGB	LG	B
IH	0.839	0.843	0.830
ExR	0.864	0.870	0.846
Clm	0.831	0.836	0.811
SO	0.800*/0.715**	0.812*/0.708**	0.762*/0.733**
SOa	0.674*/0.616**	0.708*/0.636**	0.573*/0.541**
SOb	0.808*/0.649**	0.819*/0.633**	0.774*/0.686**
SMNE	0.840	0.850	0.781

IH, Internalized Homophobia; ExR, Expectation of Rejection; Clm, Concealment; SO, Satisfaction with Outness; SOa, the degree of orientation disclosure; SOb, the degree of satisfaction with orientation disclosure; SMNE, Sexual Minority Negative Event.

* Analysis with SO4 item in *a* or *b* scale (NLGB=77, NLG=56, NB=21).

** Analysis without SO4 item in *a* or *b* scale (NLGB=268, NLG=206, NB=62).

Of interest is the SO subscale, and in particular items 4a, "Are you out to your religious community or clergy about your sexual orientation?" and 4b, "How satisfied are you with your level of outness to your religious community?" More than 70% (188/268) of respondents chose the answer "not applicable" for both questions, with similar proportion of the homosexual group (72.8%; 150/206) and the bisexual group (66.2%; 41/62). On the one hand this situation restricts statistical analysis (Table 2 shows two Cronbach's alpha coefficients for the SO subscale, i.e. with and without these items), and on the other hand the validity of these items is questionable among the Polish sample.

The next step was exploratory factor analysis, which was also conducted in three groups: LGB, LG and B. Its goal was to create scales based on an internal relationship of SSMS items, rather than on what the questionnaire authors proposed, and to check whether the relation between items is similar among Poles and Americans. Two items from the SO scale (4a and 4b) were not included in this analysis because of a small number of participants who have revealed their sexual orientation to their religious community at the time of study.

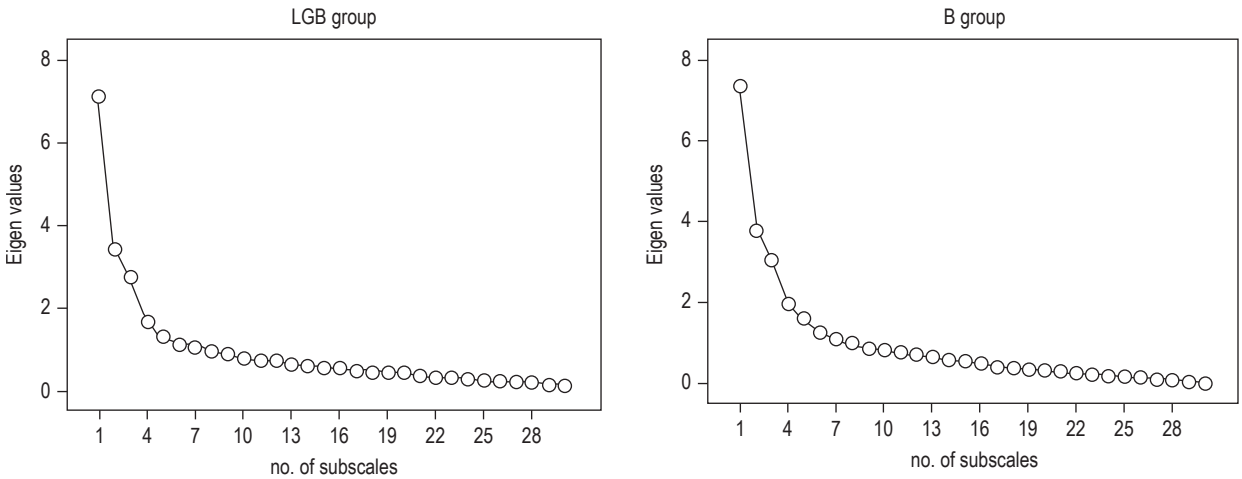

Figure 1. Scree plot for the whole sample (LGB), homosexuals (LG) and bisexuals (B) – analysis without an SMNE scale

Four factors were extracted on the basis of the scree plot (Figure 1), which accounted for 50.1%, 53.4% and 50.5% of total variability in LGB, LG and B groups separately. Table 3 presents the results of exploratory factor analysis with items labeled as per the original SMSS questionnaire for ease of comparison of the original and extracted scales. The results based on exploratory factor analysis and proposed by the authors of the questionnaire are identical. Factor loadings that represent a relationship between the item and the factor exceeded 0.6 in most cases. Two small loadings should be highlighted, the first connected with item IH 1 ("How often have you felt it best to avoid personal or social involvement with other people who identify as gay, lesbian, bi, or queer?") and the second one with IH 10 ("Have you felt that your sexual orientation has allowed you to express a natural part of your sexual identity?") in each studied group. This may suggest that these items are not needed in the Polish version of the questionnaire.

Table 3. Factors with items and factor loadings for on the whole number of participants (LGB), homosexual (LG) and bisexual (B) groups

Factor	LGB		LG		B	
	Items	Factor loadings	Items	Factor loadings	Items	Factor loadings
1	Clm 5	0.705	IH 4	0.820	Clm 6	0.714
	Clm 6	0.695	IH 2	0.818	Clm 5	0.701
	Clm 2	0.647	IH 9	0.764	Clm 2	0.693
	Clm 1	0.633	IH 7	0.737	Clm 3	0.593
	Clm 3	0.623	IH 5	0.702	Clm 1	0.565
	Clm 4	0.567	IH 6	0.684	Clm 4	0.395
			IH 3	0.569		
			IH 8	0.445		
			IH 10	0.258		
			IH 1	0.239		
2	IH 4	0.818	Clm 5	0.712	IH 4	0.817
	IH 2	0.813	Clm 6	0.675	IH 2	0.772
	IH 9	0.766	Clm 1	0.645	IH 9	0.766
	IH 6	0.684	Clm 3	0.620	IH 6	0.667
	IH 7	0.665	Clm 4	0.614	IH 3	0.547
	IH 5	0.626	Clm 2	0.612	IH 8	0.505
	IH 3	0.561			IH 7	0.461
	IH 8	0.456			IH 1	0.445
	IH 1	0.303			IH 5	0.298
	IH10	0.239			IH 10	0.206
3	ExR 3	0.806	ExR 6	0.816	ExR 4	0.841
	ExR 6	0.803	ExR 3	0.810	ExR 5	0.808
	ExR 4	0.798	ExR 4	0.780	ExR 6	0.759
	ExR 5	0.792	ExR 5	0.780	ExR 3	0.751
	ExR 2	0.743	ExR 2	0.764	ExR 2	0.663
	ExR 1	0.619	ExR 1	0.626	ExR 1	0.576
4	SO 1b	0.728	SO 1b	0.708	SO 1b	0.683
	SO 1a	0.665	SO 1a	0.609	SO 1a	0.663
	SO 2a	0.531	SO 2b	0.516	SO 2a	0.660
	SO 2b	0.513	SO 2a	0.483	SO 5a	0.525
	SO 5a	0.475	SO 5b	0.456	SO 2b	0.438
	SO 3b	0.400	SO 5a	0.439	SO 3b	0.282
	SO 5b	0.332	SO 3b	0.398	SO 3a	0.194
	SO 3a	0.303	SO 3a	0.288	SO 5b	-0.114

IH, Internalized Homophobia; ExR, Expectation of Rejection; Clm, Concealment; SO, Satisfaction with Outness;

Furthermore, the order of scales appears important. In the whole group (LGB) the first factor was concerned with Concealment and accounted for 24.7% of total variance, and the second factor was connected with Internalized Homophobia and accounted for 11.5% of total variance. Very similar results were obtained in the bisexual group, i.e. the first factor was Concealment with 24.5% of total variance and the second was Internalized Homophobia with 12.6% of total variance. The inverse order was observed among homosexual participants (LG): Internalized Homophobia was the most important factor with 24% of total variance, while Concealment was the second most important factor (11.8%). It should be pointed out that subscales SOa and SOb have lower factor loadings than other scales, especially those connected with outness to friends and medical staff. High factor loadings within these subscales concern the level and satisfaction with outness to family members, colleagues and school friends.

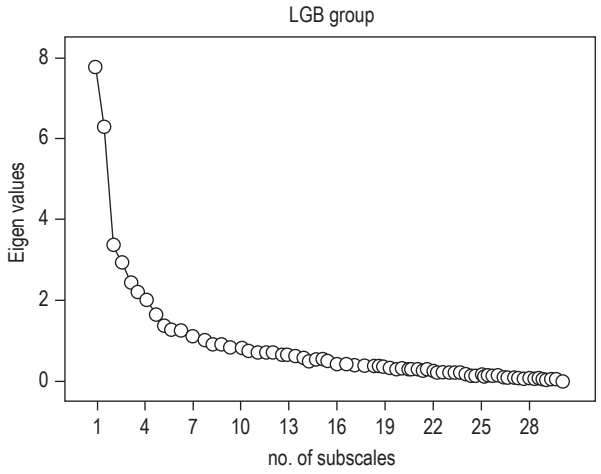

Figure 2. Scree plot for the whole sample (LGB) – analysis with an SMNE scale

The analysis showed that the same SMSS subscales can be used in the whole LGB group without any changes and without distinguishing between homosexual and bisexual people. Based on that, the next step of the study was exploratory factor analysis among the whole sample and with all items (including the SMNE subscale). Figure 2 presents the scree plot. The optimal number of factors was set at 8. The extracted factors accounted for 51.5% of total variability and are very similar to those proposed by SMSS authors. Table 4 shows the results of factor and reliability analysis. Although the SMNE subscale was divided into several factors, they are consistent with the authors' concept. One of the extracted scales was based on events witnessed or heard about (SMNE 17–22) and the second was focused on HIV (SMNE 23–26). The next one was about events experienced due to an LGB status. This scale was divided into two others according to the importance of negative events. Unfair treatment by peers, parents, teachers or supervisors, abuse or exclusion from social activities or sports were in the first group of events, while life-threatening events such as being threatened with a knife or other weapon, mutilation or rape were in the second group of events.

Table 4. Factors with items, loadings and Cronbach's alpha coefficients in the whole LGB group

Factor	Items	Factor loadings	Cronbach's alpha
1	SMNE 5	0.788	0.858
	SMNE 11	0.771	
	SMNE 10	0.752	
	SMNE 1	0.708	
	SMNE 13	0.708	
	SMNE 4	0.656	
	SMNE 3	0.590	
	SMNE 9	0.585	
	SMNE 2	0.497	
	SMNE 7	0.417	
	SMNE 6	0.338	

2	Clm 4 Clm 6 Clm 1 Clm 3 Clm 5 Clm 2	0.669 0.665 0.647 0.632 0.615 0.594	0.831
3	IH 4 IH 2 IH 9 IH 6 IH 7 IH 5 IH 3 IH 8 IH 1 IH10	0.817 0.795 0.736 0.680 0.672 0.623 0.601 0.515 0.348 0.286	0.839
4	ExR 3 ExR 6 ExR 4 ExR 5 ExR 2 ExR 1	0.818 0.796 0.766 0.757 0.737 0.614	0.864
5	SMNE 16 SMNE 8 SMNE 14 SMNE 12 SMNE 15	0.783 0.693 0.650 0.631 0.613	0.756
6	SMNE 18 SMNE 21 SMNE 19 SMNE 17	0.769 0.707 0.702 0.621	0.727
7	SMNE 25 SMNE 26 SMNE 24 SMNE 23	0.879 0.857 0.557 0.455	0.583
8	SO 1b SO 1a SO 5b SO 2b SO 3b SO 2b SO 2a SO 3a	0.728 0.587 0.336 0.305 0.280 0.269 0.190 0.116	0.715

IH, Internalized Homophobia; ExR, Expectation of Rejection; Clm, Concealment; SO, Satisfaction with Outness; SOa, the degree of orientation disclosure; SOb, the degree of satisfaction with orientation disclosure; SMNE, Sexual Minority Negative Event.

Table 5. Descriptive statistics of SMSS scales in homosexual and bisexual groups

SMSS scales	Homosexuals			Bisexuals			p
	M±SD	Min-max	Me (Q_1-Q_3)	M±SD	Min-max	Me (Q_1-Q_3)	
IH	1.63±.57	1.0-3.4	1.5 (1.2-1.9)	1.69±.57	1.0–3.4	1.55 (1.20–2.20)	0.382
ExR	2.17±.67	1.0-4.0	2.17 (1.67-2.54) 1.83 (1.17-2.5)	2.16±.63	1.0–4.0	2.17 (1.79–2.50)	0.890
Clm	1.97±.86	1.0-4.5	2.25 (1.8-2.75)	1.88±.78	1.0–4.5	1.73 (1.29–2.17)	0.573
SOa	2.28±.62	1.0-4.0	4.4 (3.5-5.25)	2.24±.51	1.0–3.75	2.25 (2.0–2.6)	0.791
SOb	4.34±1.19	1.0-6.0	7.0 (4.0-12.0)	4.05±1.22	1.0–6.0	4.25 (3.5–5.0)	0.168
SMNE	8.36±6.23	0.0-34.0	7.0 (4.0-13.0)	7.49±5.03	0.0–22.0	6.0 (4.0–9.5)	0.547

IH, Internalized Homophobia; ExR, Expectation of Rejection; Clm, Concealment; SOa, the degree of orientation disclosure; SOb, the degree of satisfaction with orientation disclosure; SMNE, Sexual Minority Negative Event

The last step of the analysis was to compare the average scores of the homosexual and bisexual groups of individuals on each SMSS scale. The descriptive statistics of the scales are presented in Table 5. There were no statistically significant differences between group medians on any of the SMSS scales (p >0.05 in each case). Thus, we can conclude that the average assessment of minority stress in all given aspects remains the same without regard for the person's sexual orientation.

DISCUSSION

A closely similar distribution of all items of the examined scale in the authors' proposal and current factor analysis indicates similar attitudes in Polish and American societies. Further, a similar division of items in the groups of bi – and homosexual people confirms the applicability of the tool to the broad LGB group. The reason the analysis was conducted in the three groups separately was that it is a new tool not previously published and to confirm that the scales for bisexual and homosexual people should contain exactly the same questions as the authors of the scale assumed.

It is worth highlighting two issues. Firstly, more than 70% of LGB people answered "not applicable" to questions in the scale which investigate satisfaction with disclosure (SO). Perhaps this is due to the fact that in Poland representatives of the dominant Roman Catholic Church speak about non-heterosexual people in a very critical (not to say depreciating) manner. So communities organized around the Catholic Church are not perceived as places where one can safely disclose one's sexual orientation. In the United States this situation might look different – a multitude of faiths and religions gives an opportunity to find one in which non-heterosexual orientation may be received with acceptance and support.

The second issue is the low scores of two loading factors of items in the IH subscale. The question "How often have you felt it best to avoid personal or social involvement with other people who identify as gay, lesbian, bi, or queer?" can be very confronting for the person and trigger various defense mechanisms. Therefore answers may not be reliable. In turn, the question "Have you felt that your sexual orientation has allowed you to express a natural part of your sexual identity?" may not be reliable because open expression of sexual identity in Poland is saddled with the risk of stigmatization or even rejection or violence.

As previously mentioned, research on minority stress experienced by homosexual and bisexual people poses many difficulties. These concern the ways of conceptualizing terms related to minority stress and various methodological issues. SMSS is suitable for use in research on minority stress in homosexual and bisexual individuals, based on the current analysis. It relies on a clearly defined concept of minority stress and uses several indicators of stress. Current research reveals that these indicators reflect a relatively reliable level of stress experienced by respondents. Unfortunately, there are no data supporting the clinical utility of SMSS as yet, and further study of the scale is therefore needed.

Anyone interested in using the SMSS is invited to contact the authors of the article.

REFERENCES

1. Selye H. Stress życia [Stress of life]. Warszawa: PZWL, 1963.
2. Grinker RR, Spiegel JP. War Neuroses. Philadelphia: Blakiston, 1945.
3. Lazarus RS. From psychological stress to the emotions: a history of changing outlooks. Annu Rev Psychology. 1993; 44: 1–21.
4. Lazarus RS, Folkman S. Stress, Appraisal and Coping. New York: Springer; 1984.
5. Łosiak W. Natura stresu. Spojrzenie z perspektywy ewolucyjnej [The nature of stress. Regard from an evolutionary perspective]. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego; 2007.
6. Łosiak W. Psychologia stresu [Stress Psychology]. Warszawa: Wydawnictwo Akademickie i Profesjonalne; 2008.
7. Kaplan R. The small experiment: Achieving more with less. In: Nasar JL, Brown BB, editors. Public and Private Places. Edmond: Environmental Design Research Association; 1996: pp. 170–174.
8. Cofer ChN, Appley MH. Motywacja i badanie [Motivation and research]. Warszawa: PWN; 1972.
9. Mead G. Umysł, osobowość i społeczeństwo [Mind, Self and Society]. Warszawa: PWN; 1975.
10. Dohrenwend BP. Adversity, Stress, and Psychopathology. New York: Oxford University Press, 1998.
11. Meyer IH. Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: conceptual issues and research evidence. Psychol Bulletin. 2003; 5: 674–697.
12. Meyer IH. Minority stress and mental health in gay men. In: Garnets LD, Kimmel DC, editors. Psychological Perspectives on Lesbian, Gay, and Bisexual Experiences. New York: Columbia University Press; 2003: pp. 699–731.
13. Iniewicz G. Stres mniejszościowy u osób biseksualnych i homoseksualnych. W poszukiwaniu czynników ryzyka i czynników chroniących [Minority stress in bisexuals and homosexuals. Risk factors and protective factors]. Kraków: Wydawnictwo Uniwersytetu Jagiellońskiego; 2015.
14. Burn SM. Heterosexuals' use of "fag" and "queer" to deride one another: A contributor to heterosexism and stigma. J Homosexuality. 2000; 40: 1–11.
15. Burn SM, Kadlec K, Rexer R. Effects of subtle heterosexism on gays, lesbians, bisexuals. J Homosexuality. 2005; 2: 23–38.
16. Moleiro C, Delgado A, Pinto N. Sexual orientation microaggressions in the clinical setting: the experience of lesbian, gay and bisexual clients in Portugal. Presentation during 1st International Conference of LGBT Psychology and Related Fields, Lisbon, Portugal, 20–22 June 2013.
17. Shelton K, Delgado-Romero EA. Sexual orientation microaggressions: the experience of lesbian, gay, bisexual, and queer clients in psychotherapy. J Counsel Psychology. 2011; 2: 210–221.
18. Sue DW, Capodilupo ChM, Torino GC, Bucceri JM, Holder AMB, Nadal, KL, et al. Racial microaggressions in everyday life: implications for clinical practice. Am Psychologist. 2007; 4: 271–286.
19. Brooks VR. Minority Stress and Lesbian Women. Lexington, MA: Lexington Books, D.C. Heath and Co.; 1981.
20. Iniewicz G, Grabski B, Mijas M. Zdrowie psychiczne osób homoseksualnych i biseksualnych – rola stresu mniejszościowego [Mental health of homosexual and bisexual people – role of minority stress]. Psychiatria Polska, 2012: 4, 649-663.
21. Schwartz S, Meyer I. Mental health disparities research: The impact of within and between group analyses on tests of social stress hypotheses. Soc Sci Medicine. 2010; 70: 1111–1118.
22. Turner RJ. Health disparities and the stress hypothesis: a commentary on Schwartz and Meyer. Soc Sci Med. 2010; 70: 1119–1120.
23. Schwartz S, Meyer I. Reflections on the stress model: a response to Turner. Soc Sci Med. 2010; 70: 1121–1122.
24. Dohrenwend BP. Inventorying stressful life events as risk factors for psychopathology: toward resolution of the problem of intracategory variability. Psychol Bulletin. 2006; 132: 477–495.
25. Ellis SJ. Homophobia, rights and community: contemporary issues in the lives of LGB people in the UK. In: Clark V, Peel E. editors. Out in Psychology. Lesbian, Gay, Bisexual, Trans, Queer Perspectives. Chichester: John Wiley & Sons Ltd.; 2007: pp. 291–310.
26. Frost DM, Lehavot K, Meyer IH. Minority stress and physical health among sexual minority individuals. J Behav Med. 2013; 18 July: doi 10.1007/s10865-013-9523-8.
27. Fingerhuta AW, Peplaub LA, Gablec SL. Identity, minority stress and psychological well-being among gay men and lesbians. Psychol Sexuality. 2010; 2: 101–114.
28. Landrine H, Klonoff EA. The schedule of racist events: a measure of racial discrimination and a study of its negative physical and mental health consequences. J Black Psychol. 1996; 22: 144–168.
29. Link BG. Understanding labeling effects in the area of mental disorders: an assessment of the effects of expectations of rejection. Am Soc Rev. 1987; 52: 96–112.
30. Herek GM. The context of anti-gay violence: notes on cultural and psychological heterosexism. J Interpers Violence. 1990; 5: 316–333.
31. Meyer IH. Minority stress and mental health in gay men. J Health Soc Behav. 1995; 36: 38–56.

32. Meyer IH, Dean L. Internalized homophobia, intimacy, and sexual behavior among gay and bisexual men. In: Herek G, editor. Stigma and Sexual Orientation: Understanding Prejudice against Lesbians, Gay Men, and Bisexuals. Thousand Oaks, CA: Sage; 1998: pp. 160–186.
33. Szymanski DM. Does internalized heterosexism moderate the link between heterosexist events and lesbians' psychological distress? Sex Roles. 2006; 54: 227–234.
34. Waldo CR. Working in a majority context: a structural model of heterosexism as minority stress in the workplace. J Counsel Psychology. 1999; 46: 218–232.
35. Meyer IH, Rossano L, Ellis JM, Bradford J. A brief telephone interview to identify lesbian and bisexual women in random digit dialing sampling. J Sex Res. 2002; 39: 139–144.
36. Allison KW. Stress in oppressed categories. In: Swim JK, Stangor C, editors. Prejudice: The Target's Perspective. San Diego, CA: Academic Press; 1998: pp. 145–170.
37. Hatzenbuehler ML, Nolen-Hoeksema S, Erickson SJ. Minority stress predictors of HIV risk behavior, stance use, and depressive symptoms: results from a prospective study of bereaved gay men. Health Psychology. 2008; 4: 455–462.
38. Lehavot K, Simoni JM. The impact of minority stress on mental health and stance use among sexual minority women. J Counsel Clin Psychology. 2011; 2: 159–170.
39. Selvidge MMD, Matthews CR, Bridges SK. The relationship of minority stress and flexible coping to psychological well being in lesbian and bisexual women. J Homosexuality. 2008; 3: 450–470.
40. Frost DM, Meyer I. Internalized homophobia and relationship quality among lesbians, gay men, and bisexuals. J Counsel Psychology. 2009; 1: 97–109.
41. Kertzner RM, Meyer IH, Frost DM, Stirratt MJ. Social and psychological well-being in lesbians, gay men, and bisexuals: the effects of race, gender, age, and sexual identity. Am J Orthopsychiatry. 2009; 79: 500–510.
42. Goldblum P, Waelde L, Skinta M, Dilley J. The Sexual Minority Stress Scale. Unpublished material, personal information.
43. Martin JL, Dean L. Developing a community sample of gay men for an epidemiologic study of AIDS. Am Behav Scientist. 1990; 33: 546–561.
44. Blair KL, Holmberg D. Perceived social network support and well-being in same-sex versus mixed-sex romantic relationships. J Soc Pers Relationships. 2008; 5: 769–776.
45. Klein F. The Bisexual Option (2nd ed.). New York: The Haworth Press; 1993.
46. Klein F, Sepekoff B, Wolf TJ. Sexual orientation: a multi-variable dynamic process. J Homosexuality. 1985; 1/2: 35–50.